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| 10/561,027      | 12/16/2005  | Andrew C. Kular      | 5276-110US//P28,033-A-USA | 1877             |

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| EXAMINER |
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2838

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09/25/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                   |                              |  |
|------------------------------|-----------------------------------|------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/561,027     | Applicant(s)<br>KULAR ET AL. |  |
|                              | Examiner<br>Johali A. Torres Ruiz | Art Unit<br>2838             |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/16/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6-7, 11-13 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuchiya et al. (U.S. Patent number 5,105,776) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Camus et al. (U.S. Patent Number 6,216,480).
4. Claims 1 and 11 for 102(b): Tsuchiya teaches a source (2) of variable and intermittent energy (Col.2, Lines 25-27); a first stage energy storage means (5) suitable for capturing and accumulating the energy from the source (Col.2, Lines 28-30); a second stage energy storage means (6), which is capable of receiving a charge and storing this charge for later use (Col.2, Lines 33-36); and an electronic means (33) which senses and monitors the energy accumulated in the first stage storage means (5)

and then activating a charge management electronics means (34) when there is sufficient energy in the first stage storage (5) to efficiently charge the second stage energy storage means (6) (Col.2, Lines 49-55).

5. Claims 1 and 11 for 103(a): Tsuchiya does not teach the energy source is a photovoltaic cell. Camus teaches an energy source consisting of a photovoltaic cell (Col.7, Lines 45-47). It teaches it is used to charge a capacitor (Col.7, Lines 51-53). It would have been obvious to one of ordinary skill at the time the invention was made to have had the energy source be a photovoltaic cell in Tsuchiya as taught in Camus to have obtained the above advantage.

6. Claims 2 and 12: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. Tsuchiya teaches said first stage energy storage means (5) comprises an electrical device that exhibits capacitance behavior and has a low Equivalent Series Resistance (ESR) (Col.3, Lines 17-23).

7. Claims 3 and 13: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. Tsuchiya teaches a control circuit that senses an over-voltage condition in the first stage energy storage means (C1 and C2) and limits the voltage to a safe level (Col.3, Lines 35-46).

8. Claims 6 and 16: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. Tsuchiya teaches at least two first stage energy storage means (C1 and C2) (Col.3, Lines 17-23).

9. Claims 7 and 17: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. Tsuchiya teaches at least two second stage energy storage means (6) (Fig.3).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (U.S. Patent number 5,105,776) and Camus et al. (U.S. Patent Number 6,216,480) as applied to claims 1 and 11 above, and further in view of Ochiai et al. (U.S. Patent Number 5,994,789).

12. Claims 4 and 14: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. It teaches a control circuit that activates the transfer of any useful energy from the first stage storage means (5) to the second stage storage means (6) even if the voltage in the first stage storage means is not optimal for such a transfer (Col.2, Lines 49-55). It does not explicitly teach a control circuit that senses the direction of current "into" versus "out of" the first energy stage storage means. Ochiai teaches a control circuit (S1) that senses the direction of current "into" versus "out of" a first energy stage storage means (17) (Col.2, Lines 20-24). It teaches this is done to judge

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when the capacitor charge is completed (Col.3, Lines 52-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had a control circuit that senses the direction of current "into" versus "out of" the first energy stage storage means in Tsuchiya as taught in Ochiai to have obtained the above advantage.

13. Claims 5 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (U.S. Patent number 5,105,776) and Camus et al. (U.S. Patent Number 6,216,480) as applied to claims 1 and 11 above.

14. Claims 5 and 15: Tsuchiya and Camus teach the limitations of claims 1 and 11 as discussed above. Camus teaches an energy source consisting of a photovoltaic cell (Col.7, Lines 45-47). It teaches it is used to charge a capacitor (Col.7, Lines 51-53). It would have been obvious to one of ordinary skill at the time the invention was made to have had the energy source be a photovoltaic cell in Tsuchiya as taught in Camus to have obtained the above advantage.

15. Claims 8-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (U.S. Patent number 5,105,776) and Camus et al. (U.S. Patent Number 6,216,480) as applied to claims 7 and 17 above, and further in view of Kwan et al. (U.S. Patent Number 5,844,398).

16. Claims 8 and 18: Tsuchiya and Camus teach the limitations of claims 7 and 17 as discussed above. It teaches a microcomputer is used to effect the charging of the second storage means (6) (Col.2, Lines 47-55). It does not explicitly teach said microcomputer is a programmable mean for setting parameters. Kwan teaches a

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microcomputer is a programmable mean for setting parameters (Col.5, Lines 38-45). It teaches this is done to control charging (Col.4, Lines 30-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had a microcomputer being a programmable mean for setting parameters in Tsuchiya as taught in Kwan to have obtained the above advantage.

17. Claims 9 and 19: Tsuchiya, Camus and Kwan teach the limitations of claims 8 and 18 as discussed above. Kwan teaches the programmable mean consists of a programmable chip used to control charging (Col.4, Lines 30-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had a programmable mean consisting of a programmable chip in Tsuchiya as taught in Kwan to have obtained the above advantage.

18. Claims 10 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchiya et al. (U.S. Patent number 5,105,776), Camus et al. (U.S. Patent Number 6,216,480) and Kwan et al. (U.S. Patent Number 5,844,398) as applied to claims 8 and 18 above, and further in view of Nagai et al. (U.S. Patent Number 7,193,390).

19. Claims 10 and 20: Tsuchiya, Camus and Kwan teach the limitations of claims 8 and 18 as discussed above. They do not explicitly teach said charge management electronic means permits independent charging of at least some of said at least two second stage storage means. Nagai teaches a charge management electronic means permits independent charging of at least some of at least two second stage storage means (E21 and E22) from energy stored in a first storage means (C22) (Col.12, Lines 48-51). It teaches this is done to balance said second storage means (Col.12, Lines 51-

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53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have had a charge management electronic means permitting independent charging of at least some of at least two second stage storage means in Tsuchiya as taught in Nagai to have obtained the above advantage.

### ***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johali A. Torres Ruiz whose telephone number is (571) 270-1262. The examiner can normally be reached on M- Alternating F 7:30am-5pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
JAT

  
**BAO Q. VU**  
**PRIMARY EXAMINER**